Factors Influencing University Students' Behavioral Intention to Use Generative Artificial Intelligence: Integrating the Theory of Planned Behavior and AI Literacy

Abstract

Abstract Generative artificial intelligence (GAI) advancements have ignited new expectations for artificial intelligence (AI)-enabled educational transformations. Based on the theory of planned behavior (TPB), this study combines structural equation modeling and interviews to analyze the influencing factors of Chinese university students' GAI technology usage intention. Regarding AI literacy, students' cognitive literacy in AI ethics scored the highest (M = 5.740), while AI awareness literacy scored the lowest (M = 4.578). Students' attitudes toward GAI significantly and positively influenced their usage intention, with the combined TPB framework and AI literacy explaining 59.3% of the variance. AI literacy and subjective norms positively influenced students' attitudes toward GAI technology and perceived behavioral control, and attitude mediated the impact of AI literacy and subjective norms on GAI usage intention. Further, the interviews provide new insights for university management and educational leadership regarding the construction of an educational ecosystem under the application of GAI technology.